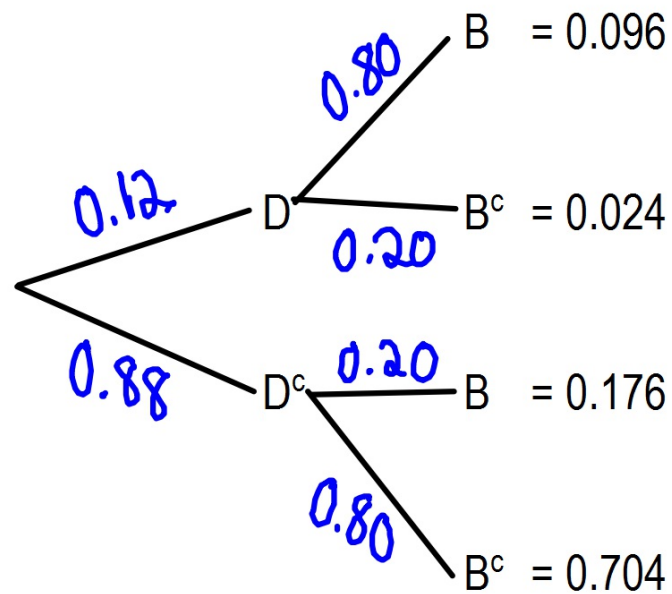


WARM UP: p. 364 #41

HAVE HW OUT!

41) $P(D) = 0.12$
 $P(B|D) = 0.80$
 $P(B|D^c) = 0.20$



(a) $P(B|D^c) = 0.20$

(b) $P(B) = 0.272$

(c) $P(D|B) = \frac{0.096}{0.272} = 0.3529$

(d) $P(D|B^c) = \frac{0.024}{0.728} = 0.03297$

p. 340

- 32) (a) 1- $P(AB) = 0.04$
2- $P(A \cup B) = 0.51$
3- $P(O^c) = 0.55$

$$P(O^c) = 1 - P(O)$$

- (b) 1- $P(O \cap O \cap O \cap O) = 0.041$
2- $P(AB^c \cap AB^c \cap AB^c \cap AB^c) = 0.8493$
3- $1 - P(A \cap A \cap A \cap A) = 0.9744$
4- $1 - P(B^c \cap B^c \cap B^c \cap B^c) = 0.3726$

p. 361

13) $P(F) = 0.70$

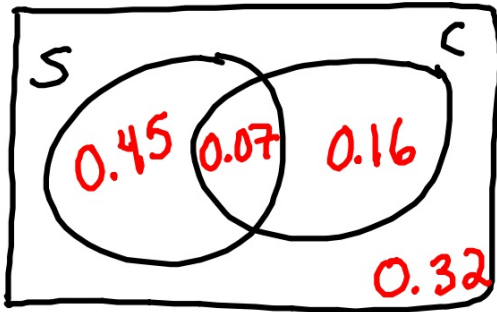
$$P(S|F) = 0.30$$

$$P(F \cap S) = P(S|F) * P(F) = 0.70 * 0.30 = \mathbf{0.21}$$

$$P(S|F) = \frac{P(S \cap F)}{P(F)}$$

$$0.3 = \frac{P(S \cap F)}{0.70}$$

19) $P(S) = 0.52$ $P(C) = 0.23$ $P(S \cap C) = 0.07$



(a) Eligibility = $P(S \cup C) = P(S) + P(C) - P(S \cap C) = 0.68$

Ineligibility = $P(S^c \cap C^c) = 1 - 0.68 = 0.32$

(b) $P(C|S) = \frac{P(C \cap S)}{P(S)} = \frac{0.07}{0.52} = 0.135$

(c) No. $P(C \cap S) \neq 0$

(d) No. $P(C|S) \neq P(C)$ or $P(C \cap S) \neq P(C) * P(S)$

p. 364

31) Independent:

$$P(B | A) = P(B)$$

or

$$P(A \cap B) = P(A) * P(B)$$

Check: $P(M | D) = P(M)$

or

$P(M \cap D) = P(M) * P(D)$

$$36/84 = 105/202$$

$$36/202 = (105/202) * (84/202)$$

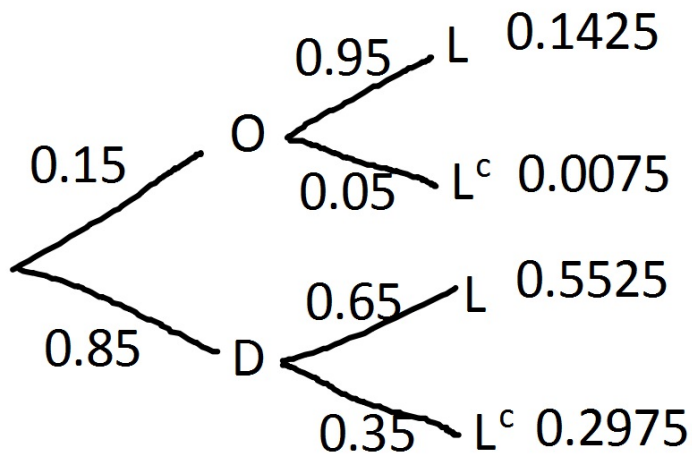
$$0.42857 \neq 0.5198$$

$$0.1782 \neq 0.2162$$

NO

NO

33)

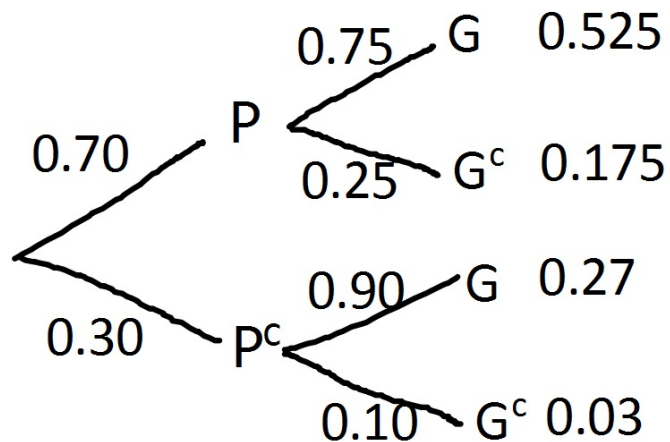


(a) No. There are conditional probabilities, so there is dependence.

(b) $P(L) = 0.1425 + 0.5525 = 0.695$

35) $P(D | L^c) = \frac{0.2975}{0.305} = 0.9754$

34)



$$P(P) = 0,70$$

$$P(G|P) = 0.75$$

$$P(G|P^c) = 0.90$$

(a) Yes. There are conditional probabilities, so there is dependence.

$$(b) P(G) = 0.525 + 0.27 = 0.795$$

36) $P(P | G) = \frac{0.525}{0.795} = 0.6604$